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Anisotropic s-wave superconductivity and peak effect in single crystals CaAlSi R. PROZOROV, Ames Laboratory and Department of Physics and Astronomy, Iowa State University, Ames, Iowa 50011, T. OLHEISER, R.W. GIANNETTA, Department of Physics, University of Illinois at Urbana-Champaign, 1110 W. Green Street, Urbana, IL 61801, K. UOZATO, T. TAMEGAI, Department of Applied Physics, The University of Tokyo, Hongo, Bunkyo-ku, Tokyo 113-8656, Japan — In- and out- of plane London penetration depths were measured in single crystals of CaAlSi by using radio-frequency resonant technique. The obtained temperature variation of the anisotropic superfluid density can be explained by an ellipsoidal s-wave gap with a weak-coupling BCS value in the ab-plane and larger gap amplitude in the c-direction. In a mixed state, similar measurements yield Campbell length, which was used to study the peak effect (PE) in the critical current. The position of the PE line on an H-T phase diagram, the influence of anisotropy and sample parameters are discussed.

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☒ Prefer Oral Session
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